



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

March 15, 2002

Colonel Ralph H. Graves
District Engineer
Department of the Army
Corps of Engineers
Seattle Distric
P.O. Box 3755
Seattle, Washington 98124-3755

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation on City of Everett's Water Transmission Line Project,
Pipelines No.2 and No. 3: Phase 5, (COE 2000-4-00688, NMFS No. WSB-00-566)

Dear Colonel Graves:

Attached is the National Marine Fisheries Service's (NMFS) Biological Opinion (Opinion) on the Everett Water Transmission Line Project, Pipelines No. 2 and No. 3: Phase 5. This Opinion was prepared in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996. NMFS concludes in this Opinion that the proposed action is not likely to jeopardize the continued existence of Puget Sound chinook salmon or result in the destruction or adverse modification of designated critical habitat. Please note that the incidental take statement (Section 2.8 of the Opinion) includes nondiscretionary reasonable and prudent measures and terms and conditions to minimize take of Puget Sound chinook salmon.

In a letter dated December 20, 2000, the U.S. Army Corps of Engineers (COE) requested concurrence in accordance with the informal consultation rules. Later, NMFS determined the proposed project is likely to affect Puget Sound chinook because the effect could not be sufficiently reduced to an insignificant level and, in a letter dated November 16, 2001, suggested that the COE request formal consultation. The COE responded in a letter dated December 7, 2001, that the project is likely to adversely affect Puget Sound chinook (*Oncorhynchus tshawytscha*). The NMFS concurs with the COE determination that the proposed project is likely to adversely affect Puget Sound chinook.

This Opinion reflects the results of formal ESA consultation and contains an analysis of the effects of the proposed action on threatened Puget Sound chinook salmon in the Snohomish



River and Ebey Slough, Washington. This Opinion is based on information provided in a final Biological Assessment dated May 2000, in addition to other documents and information provided to NMFS during the consultation process. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office.

This Opinion also serves as consultation on Essential Fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations at 50 CFR Part 600.

If you should have any questions regarding this consultation, please do not hesitate to contact Kitty Nelson of my staff at (206) 526-4643.

Sincerely,

A handwritten signature in cursive script that reads "Russell M. Strach for".

D. Robert Lohn
Regional Administrator

Enclosure

cc: Thomas Mueller, ACOE


Endangered Species Act - Section 7 Consultation

**Biological Opinion
and
Magnuson-Stevens Fishery Conservation and Management Act Consultation**

**City of Everett Water Transmission Line
Pipelines No. 2 and No. 3: Phase 5
in Snohomish County, Washington
(WSB-00-566)**

Agency: U.S. Department of Army
Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service
Northwest Region
Washington Habitat Branch

Issued By: 
D. Robert Lohn
Regional Administrator

Date Issued: 03/15/2002

TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Consultation History	1
1.2 Description of the Proposed Action	2
2.0 ENDANGERED SPECIES ACT	6
2.1 Status of the Species and Critical Habitat	6
2.2 Population Level Information	7
2.3 Evaluation of the Proposed Action	8
2.4 Environmental Baseline	9
2.5 Status of the Species in the Action Area	11
2.6 Factors Affecting Species in the Action Area	11
2.7 Effects of the Proposed Action	12
2.7.1 Direct Effects	12
2.7.2 Indirect Effects	15
2.7.3 Effects on Critical Habitat	15
2.7.4 Cumulative Effects	16
2.8 Conclusion	17
2.9 Incidental Take Statement	18
2.9.1 Amount or Extent of the Take	18
2.9.2 Reasonable and Prudent Measures	19
2.9.3 Terms and Conditions	19
2.9.4 Conservation Recommendations	21
2.9.5 Reinitiation of Consultation	22
3.0 MAGNUSON-STEVEN'S FISHERY CONSERVATION AND MANAGEMENT ACT	22
3.1 Background	22
3.2 Identification of EFH	23
3.3 Proposed Actions	23
3.4 Effects of Proposed Action	24
3.5 Conclusion	25
3.6 EFH Conservation Recommendations	25
3.7 Statutory Response Requirement	25
3.8 Supplemental Consultation	25
4.0 REFERENCES	26

1.0 INTRODUCTION

1.1 Consultation History

This document presents the National Marine Fisheries Service's (NMFS) Biological Opinion (Opinion) based on our review of the U.S. Army Corps of Engineers' (COE) proposal to issue a permit that would allow replacement of two sections of the Everett Water Transmission Line and its effects on threatened Puget Sound chinook (*Oncorhynchus tshawytscha*). This consultation is in accordance with section 7(a)(2) of the Endangered Species Act (ESA) and its implementing regulations, 50 CFR Part 402.

On December 26, 2000, NMFS received a Biological Assessment (BA) and written request from the COE for section 7 consultation for replacement of the water transmission line, located in Everett, Washington. The City of Everett is the applicant and will be constructing the project. The COE is the lead federal agency for this consultation and determined that the project was not likely to adversely affect chinook. NMFS, however, believed that the project, as proposed, would have greater than discountable or insignificant effects and therefore determined that the project would likely adversely affect Puget Sound chinook and their critical habitat.

On September 14, 2001, the City of Everett and NMFS met at the site to discuss the proposed project. On November 8, 2001, the City of Everett, COE and NMFS met to discuss the impacts of the proposed project and the effect determination. On November 16, 2001, NMFS responded to the COE request for consultation with a determination that the project was likely to adversely affect Puget Sound chinook and their critical habitat. Subsequently, NMFS and the City of Everett met on November 21, 2001 and December 11, 2001 to discuss elements of the proposed project. The COE requested formal consultation for the City of Everett Water Transmission Pipeline (numbers two and three) Replacement project in a letter received by NMFS on December 13, 2001.

From September 14, 2001 through January 17, 2002, the City of Everett provided additional information necessary to complete the initiation package for formal consultation. The Opinion is based on information in the BA dated May 2000, the Final Mitigation Plan dated September 2001, responses to NMFS questions dated October 30, 2001, November 16, 2001, December 4, 2001 and numerous informal communications by email, fax and phone.

The objective of this Opinion is to determine whether the water transmission line project is likely to jeopardize the continued existence of Puget Sound chinook or result in the destruction or adverse modification of designated critical habitat. The standards for determining jeopardy are described in section 7(a)(2) of the ESA and further defined in 50 CFR. 402.14.

1.2 Description of the Proposed Action

The COE proposes to issue a permit to the City of Everett that would authorize replacement for two sections of existing parallel water transmission pipelines adjacent to State Route 2 at River Mile (RM) 4.7 on the Snohomish River. The pipelines have been buried in wetlands for approximately 70 years and are in danger of failing. The COE proposes to issue this permit pursuant to section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act of 1899.

The City of Everett Public Works Department (hereafter referred to as Everett) proposes to replace two sections of pipeline number two and number three with approximately 2,800 lineal feet of new water transmission pipeline. The number two and three pipeline sections scheduled for replacement immediately east of the Snohomish River are referred to as the West Segment. The second section of the proposed project located immediately east of Ebey Slough is referred to as the East Segment and also includes replacement of number two and three pipelines. In the West Segment, about 600 feet of each pipeline (1200 feet total) are proposed for replacement. In the East Segment, pipeline number two will have 700 feet replaced and pipeline number three will have about 900 feet replaced (1600 feet total).

The number two and number three pipelines in both the East and West Segments are buried. In the West Segment, Everett proposes to abandon the existing buried pipelines and replace them with elevated pipelines on piling bents, one to three feet above ground before connecting them to existing pipelines. The pipelines are expected to last 100 years and maintenance will occur at five to ten-year intervals. Maintenance will be done from a platform located between the two pipelines. The West Segment will be connected to elevated pipelines from the east and buried pipelines from the west that extend under the Snohomish River 12-15 feet below the channel bottom. The West Segment pipeline is exposed to flooding from the Snohomish River and tidal influence.

The number two and number three proposed pipelines in the East Segment will be buried adjacent to the existing pipelines at a depth of three feet. Existing pipeline number two will be removed while existing pipeline number three will be abandoned in place. Both new pipelines will be connected to sections of existing pipelines that have already been replaced. The East Segment pipeline is behind a dike and is subject to periodic flooding events in this location.

Everett proposes to build temporary roads and access pads to and along the pipeline sections in both the East and West Segments to reach the pipeline during construction and to store excavated soils. Everett will use temporary roads that were constructed and never rehabilitated by Washington State Department of Transportation (WSDOT) during construction of State Route 2 in 1999 to avoid additional wetland impacts. Because both the East and West Segments are located in wetlands, a total of about two acres of wetlands will be filled and 20 small red alder trees (*Alnus rubra*) will be removed to construct the roads.

Materials will be transported to the work site by barge in the West Segment. A barge access pad has already been constructed by WSDOT and the access pad will be used, then rehabilitated by Everett. Approximately 700 cubic yards of soil will be excavated during construction. Excavated materials will be stockpiled on gravel access roads and work pads. Three hundred cubic yards of soil will be removed from the site. The remaining soil will be used for backfill and will not be discarded on the top of wetlands. The existing top foot of wetland soils will be removed and stockpiled separately from the subsoil. The topsoil contains roots, tubers, shoots, and seeds from the existing plant community and will provide the propagules for a relatively fast rehabilitation of the plant community (Everett 2000). All materials such as rock aggregate, geosynthetic materials, wooden pads, and a culvert installed for building a road will be removed from the landscape after construction access to the pipeline is not needed any more.

In the East Segment one temporary access road will be built that extends the length of the pipeline and construction methods and materials will be the same as those for the West Segment. Heavy equipment will operate on wooden mats in wetlands near the access road. Stockpiles of soil from trenching necessary to bury the pipelines will be placed on the gravel access road pads and grass covered uplands (non-wetland areas). Pipe materials will be temporarily stored on wetlands but no soils will be placed on wetlands. Impacts from construction will be minimized by avoiding excavation where possible and by trenching and completing pipeline construction in short segments.

Before either pipeline is replaced, the pipeline must first be de-pressured, dechlorinated and dewatered. Dechlorination will be conducted using materials that are safe for fish and no chlorine will be discharged to the river or slough. The blow-off stations (to dechlorinate water) are located on the top of the dikes, with discharge vaults located on the banks of the river and slough. Water will be discharged over square rip rap pads extending about 13 lineal feet along the river bank and to a depth of -6 feet (NAVD 88). The rip rap pads located on the river and slough banks are intended to prevent soil erosion. No cloth barrier separates the rock from the soil to retard erosion.

As part of the proposed action, Everett proposes to create a tidal channel and enhance wetland connected to the Snohomish River in the West Segment project area where barges will off-load supplies. The shape of the proposed channel will be 80 feet wide at the mouth and 300 feet long and mimic a nearby reference tide channel. The proposed site is dominated by reed canary grass and willows or under temporary road fill now. Shallow water habitat will be created by grading a shoreline bench and tide channel that will be inundated frequently to provide habitat for juvenile and adult salmon and trout throughout much of the year (Everett 2000). A silt fence will surround the planted area to reduce potential erosion to the Snohomish River.

Finally, Everett proposes to purchase four acres of wetland immediately south of the West Segment, remove non-native vegetation and plant most of the property with additional native vegetation (primarily conifers) to enhance this wetland. A former trestle pad will be rehabilitated by removing abandoned piling structure and planting vegetation. Three acres of the purchase property will be subject to flood influence from the Snohomish River and will be

enhanced with trees and wetland vegetation. The remaining acre is located behind a dike and will not be revegetated. However, all four acres will be preserved under a Native Growth Protection Area designation and, as such, will remain undeveloped and in the public domain for the future.

Construction Schedule

Project construction is planned for July 1st through December 31 (Everett 2000). Access road construction will begin in early summer. Pipeline replacement will not start before September 15 because the capacities of both pipelines are needed to fulfill water demand during peak use. Peak demand for water occurs during the summer, typically from mid-May to mid-September each year. Tidal channel habitat will be created between July 1st and September 30th but not connected to the Snohomish River until after the majority adult chinook have migrated past the site towards the end of October. A brief schedule of activities is as follows:

1. Create tidal channel - before September 30
2. Construct access roads - July, August
3. Install piles and pipe bents in West Segment - August, September
4. Install pipeline in West Segment - October, November
5. Trench and install pipeline in East Segment - September, October, November
6. Tidal channel connection - end of October

Construction Monitoring

Everett will monitor hydrology, hydric soils, plants in the revegetated wetland areas (including the three acres of purchased property) and the created tidal channel after project construction at one, two and five years. The monitoring will include rehabilitated wetland areas and enhancement areas. Performance standards (Everett 2001) have been developed for hydrology, native wetland plant community and hydric soils using the 1987 ACOE manual. Monitoring will occur weekly to determine that soils are saturated for two consecutive weeks. Native plants will be expected to attain an 80% survival with 80% coverage after five years. The created tidal channel will be compared to a reference tidal channel nearby to confirm that inundation levels are similar. Photographs will be used to compare the two channels to assure that similar water levels are maintained in the created tidal channel.

If performance standards are not met, a wetland ecologist will examine the site to determine the probable cause of failure. Everett will work with Snohomish County environmental regulatory staff to develop an appropriate plan of action to achieve the performance standards developed by Everett (Everett 2001).

Everett has proposed conservation measures listed below to avoid or minimize impacts of the proposed project. These measures will be carried out by the applicant and are considered elements of the proposed action.

1. Everett will purchase four acres of wetland along the Snohomish River close to the project location and will designate this property for native growth protection. The property will be rehabilitated and enhanced with trees and shrubs. Everett will construct a shallow water bench and off-channel fish habitat along the Snohomish River that includes large woody debris (LWD), emergent vegetation and conifers immediately to the north of the pipeline. Everett will replant all temporary roads, access pads and excavation areas existing within the project area with appropriate wetland vegetation.
2. To minimize impacts related to construction activities, work shall occur in coordination with the Washington Department of Fish and Wildlife (WDFW) Habitat Biologist and in accordance with the Hydraulic Project Approval (HPA).
3. To minimize impacts related to construction activities, work shall occur in accordance with sedimentation and erosion control plans (TESCP) developed for the project. The sedimentation and erosion control measures are in accordance with Best Management Practices (BMPs) and are outlined in the BA. An Oil Spill Control and Countermeasures Plan (OSPCC) will be developed by the contractor and will meet the Department of Ecology's draft Stormwater Management Manual for Western Washington (August 2000). Test water from the new pipeline construction will be collected, treated on site and discharged to the surrounding wetlands.
4. To minimize impacts on the Snohomish River shoreline, Everett will restrict moorage to one barge tied to the shoreline at a time. The contractor will be required to ensure that barges and their ramps do not touch the riverbed at any time.
5. To assure project effectiveness, a monitoring plan to track the success of re-established wetland vegetation will be conducted for five years following completion of the project and the minimum requirement will be a survival rate of 80%.

Action Area

For consultations under ESA section 7, 50 CFR 402.02 (d), the implementing regulations define "action area" as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The action area for this project includes the wetlands within the construction area, adjacent wetlands downstream, and the Snohomish River/Ebey Slough downstream from the project site to the Puget Sound. Activities occurring under the proposed action would occur within a small portion of the range of Puget Sound chinook salmon but would include migrating and rearing habitat from RM 5.0 to RM 0.0 of the Snohomish River and RM 6.5 to RM 0.0 of Ebey Slough.

2.0 ENDANGERED SPECIES ACT

2.1 Status of the Species and Critical Habitat

Information concerning the biology, listing status, and critical habitat elements for the Puget Sound chinook are described in the documents listed below in Table 1.

Species (Biological Reference)	Listing Status Reference	Critical Habitat Reference
Chinook Salmon from Washington, Idaho, Oregon and California, (Myers, <i>et al.</i> 1998).	The Puget Sound ESU is listed as Threatened under the ESA by the NMFS, (64 Fed. Reg. 14308, March 1999).	Critical Habitat for the Puget Sound ESU, (65 Fed. Reg. 7764, February 16, 2000).

Table 1. References to Federal Register Notices containing additional information concerning listing status, biological information, and critical habitat designations for listed and proposed species considered in this biological opinion.

Critical habitat is defined in the ESA as “(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection and (ii) specific areas outside the geographical area occupied by the species... upon a determination by the Secretary of Commerce that such areas are essential for the conservation of the species” (50 CFR. 226).

Critical habitat is designated to include all river reaches accessible to listed salmon or steelhead except for reaches on native American lands. Critical habitat includes all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers (i.e. natural waterfalls in existence for at least several hundred years) and specific dams within the historical range of the ESU (65 Fed. Reg. 7764, February 16, 2000). Dikes are not naturally impassable barriers because they are constructed by humans and can be removed to make riparian areas accessible to chinook. Human made structures that block chinook access to habitat are listed in Table 7 of the Federal Register (65 Fed. Reg. 7764, February 16, 2000) and none are included for the Snohomish River or its tributaries including Ebey Slough. The proposed project is within the 100-year floodplain of Ebey Slough and is within critical habitat for Puget Sound chinook even though the project is located behind a dike. Floods can overtop the barrier making the area behind the dike accessible to chinook (Everett 2001). Tidal gates have also been installed to allow flood waters to drain into Ebey Slough and can malfunction trapping chinook behind the dike.

In designating critical habitat, NMFS considers the biological requirements of the species including space for individual and population growth, and for normal behavior; food, water, air,

light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing of offspring; and, generally, habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of the species. Essential habitat types providing necessary functions for chinook include (1) juvenile rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; and (5) spawning areas (65 Fed. Reg. 7764; February 16, 2000).

The proposed project action area is within the designated critical habitat for chinook salmon. Essential features of critical habitat include adequate: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions.

Essential habitat types affected by the proposed Everett Water Transmission Pipeline project are juvenile rearing areas and juvenile and adult migration corridors. Essential features of critical habitat affected by this project are riparian vegetation, water quality and cover/shelter for chinook.

2.2 Population Level Information

The Puget Sound chinook were listed as threatened on March 24, 1999 (64 Fed. Reg. 14308; March 24, 1999). The Puget Sound Evolutionarily Significant Unit (ESU) includes all naturally spawned chinook populations residing below impassable natural barriers (e.g. long-standing natural water falls) in the Puget Sound region from the North Fork Nooksack River to the Elwha River on the Olympic Peninsula, inclusive. The Puget Sound Technical Review Team (TRT), an independent scientific body convened by NMFS to develop technical delisting criteria and guidance for salmon recovery planning in Puget Sound, has identified 21 geographically distinct populations representing the primary historical spawning areas of chinook in Puget Sound (NMFS 2001). Chinook in the Snohomish River system are geographically distinct from chinook in other Puget Sound streams (NMFS 2001).

Two independent populations in the Snohomish River system have been identified by the Puget Sound TRT (NMFS 2001), the Skykomish River population and the Snoqualmie River population. The population status of chinook that spawn in the Snohomish, Pilchuck and Sultan rivers is not definitive at this time but these chinook also migrate through and potentially rear in the project's action area. Because of the proposed project's location in the river system at RM 4.7 and the project's action area that extends from the project site to the mouth, all chinook populations and life stages in the Snohomish system use this area for migrating, and juveniles also could use the area for rearing. Although some populations could be improving while others are probably declining, conclusions about population escapement trends cannot be made at this time.

2.3 Evaluation of the Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations).

The purpose of interagency consultation is to ensure Federal activities do not jeopardize the continued existence of threatened and endangered species or destroy or adversely modify habitat that has been designated as critical to the conservation of listed species (16 U.S.C. 1536). This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status. NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. Significant impairment of recovery efforts or other adverse effects which rise to the level of "jeopardizing" the "continued existence" of a listed species can be the basis for issuing a "jeopardy" opinion (50 CFR. 402.02).

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery.

Salmon survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance (NMFS 1999a). Biological requirements may be described as the habitat conditions necessary to ensure the species' continued existence and these can be expressed in terms of physical, chemical, and biological parameters. One method NMFS uses to conduct effects analyses is to characterize the existing condition of species' biological requirements in terms of a concept called properly functioning conditions (PFC). Properly functioning condition is the sustained presence of natural habitat-forming processes in a watershed (e.g. riparian vegetation succession, channel migration, hydraulic runoff, bedload transport) that are necessary for the long-term survival of the species through the full range of environmental variation. Properly functioning condition constitutes the habitat component of a species' biological requirements. The assessment of biological requirements in terms of PFC can be quantitatively or qualitatively described.

River and stream habitats are inherently dynamic. Properly functioning condition is defined by the persistence of natural processes that maintain habitat productivity at a level sufficient to ensure long-term survival. The properly functioning condition concept includes a recognition

that natural patterns of habitat disturbance will continue to occur as will anthropogenic perturbations.

NMFS will consider the impact on the species' freshwater habitat requirements, such as cover/shelter, substrate composition, structural elements, etc. Consideration of physical requirements is especially useful for habitat-related analyses because, while many cause and effect relationships between habitat quality and population viability are well known, they do not lend themselves to meaningful quantification in terms of fish numbers. Analysis of physical requirements indirectly evaluates existing habitat conditions in light of habitat conditions known to be conducive to salmon conservation. If the species' status is poor and the baseline is degraded at the time of consultation, it is more likely that any additional adverse effects caused by the proposed or continuing action will significantly reduce the likelihood of survival and recovery. The environmental baseline of the area potentially affected by the proposed action should be used in making the jeopardy determination.

If NMFS finds that the action is likely to jeopardize or adversely modify critical habitat, NMFS must identify reasonable and prudent alternatives for the action (50 CFR. 402.02). Reasonable and prudent alternatives must cover all design changes that are economically and technologically feasible for an action, independent of who is sponsoring the action (50 CFR. 402.02). The reasonable and prudent alternative must be consistent with the intended purpose of the action, consistent with the action agency's legal authority, and technologically and economically feasible. NMFS can specify a reasonable and prudent alternative that involves the maximum exercise of Federal agency authority when to do so is necessary, in the opinion of the Service, to avoid jeopardy.

2.4 Environmental Baseline

The environmental baseline represents the current basal set of conditions to which the effects of the proposed action are then added. The term "environmental baseline" means "the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process" (50 CFR. 402.02). Activities occurring under the proposed action would have effects on the migrating and rearing habitat of Puget Sound chinook from approximately RM 5.0 to RM 0.0 on the Snohomish River and RM 6.5 to RM 0.0 on Ebey Slough.

The Snohomish River Basin is the second largest river basin draining to Puget Sound and encompasses about 1900 square miles (SBSRTC 1999). This basin includes three major rivers, the Skykomish, the Snoqualmie, and the Snohomish. Conditions of the streams and rivers of the Snohomish River Basin range from pristine to moderately impacted to heavily impacted, reflecting the variety of land uses, including timber production; urban, industrial, and rural residential; and agriculture (Pentec 1999). The present condition of the system is mainly the result of historic diking, dredging, construction of fish passage barriers, roads and utility

corridors, industrial discharges, agriculture, log rafting, nonpoint source pollution, channelization of floodplain tributaries, removal of riparian forest, and removal of woody debris.

The Snohomish River is formed by the convergence of the Skykomish and Snoqualmie Rivers. The Snohomish River flows through a broad alluvial floodplain and then a delta before entering Possession Sound. The floodplain reach of the Snohomish River is located between the confluence of the Skykomish and Snoqualmie Rivers and Ebey Slough. The Snohomish River delta extends from about RM 6.1, where Ebey Slough diverges from the main stem Snohomish River, to the mouth. The delta region located between Ebey Slough and the Snohomish River is tidally influenced. Both the floodplain and delta reaches of the Snohomish River have low and relatively consistent gradients.

Riparian conditions have been extensively and radically altered along the Snohomish River. The forest provided woody debris and important food sources to the aquatic system that have now virtually been eliminated. In 1861 timber harvest began along Ebey Slough (Haas 2001). In the Snohomish delta where the proposed project is located, about 7 square miles of forested wetland and 11 square miles of emergent wetland existed in 1855 (Bortleson et al. 1980). Although much of the emergent wetlands of the Snohomish delta remain, most of the forested wetlands and nearly all of the major wetlands of the lower basin have been logged and drained. LWD is still removed from the system and existing conditions in the action area are not properly functioning for LWD.

Other channel modifications such as harbor construction, dredging, diking and bank armoring combined with a reduction in wetland acreage and riparian vegetation have significantly changed the landscape along the lower part of the river over the past 150 years. Today, 43 miles of dikes in the lower estuary downstream of the divergence of Ebey Slough from the main stem isolate the river from its former tidal marsh (Pentec 1998 as cited in Haas 2001). Ebey Island is used primarily for pasture land and agriculture today.

The Everett Water Transmission Pipeline project is located in the lower estuary of the Snohomish River delta that was previously forested and influenced by river and tidal flooding. Only five percent of the historical forested riverine/tidal zone (FRT) exists today (Haas 2001). Historically, the FRT zone was composed of 56% deciduous tree species and 44% coniferous tree species. Alder was most abundant, followed in descending order by Sitka spruce, pine (*Pinus sp.*), crabapple (*Malus sp.*), and Douglas-fir (Haas 2001). Today, dominant plants in the action area include red-osier dogwood (*Cornus stolonifera*), hardhack (*Spiraea douglasii*), willow, skunk cabbage, cattails and reed canary grass (*Phalaris arundinacea*). Some scattered red alder trees and salmonberry shrubs (*Rubus spectabilis*) also grow in the wetland.

During the last 30-50 years, timber mills in the area have been replaced with other water dependant industries such as marinas and boat launches. In the early 1900s the COE began dredging the river for ship access and in the process diverted the mainstem to what is now the City of Everett waterfront. Dredging continues in the lower river on an annual basis (Haas 2001). Much of the lower river off-channel areas have been filled, converting estuarine marsh

habitats for human uses (Haas 2001, Williams et al. 1975). Although most of the marsh in the lower estuary was diked and converted to agricultural use, permanent conversion to industrial uses, municipal sewage treatment, waste disposal and infrastructure account for 10 percent of the total reduction in tidal marsh area (Haas 2001).

In summary, many historic and some on-going actions within the action area have degraded baseline conditions. The primary indicator affected by the proposed project is the riparian reserve. The functions provided by adequate native riparian reserves in the FRT zone include LWD recruitment, cover/shelter, riparian connectivity, a buffer, and riparian vegetation that is similar to the potential natural community composition (NMFS 1998). Because 95% of the historical extent of the FRT has been lost over time, adequate riparian vegetation, especially that which provides LWD and adequate cover/shelter, does not exist in the vicinity of this proposed project because of cumulative anthropogenic changes to the landscape.

2.5 Status of the Species in the Action Area

Adult Puget Sound chinook migrate upstream in the Snohomish River and through the action area from August through October to spawn higher in the basin (Everett 2000). Most chinook spawning occurs within mainstem habitats and larger tributaries upstream from the action area where suitable substrate and optimal water depths and velocities for the species are found. All juveniles produced upstream spend some time in the action area growing and acclimating to salt water.

Snohomish River juvenile chinook migrate between January and August (Kraemer, pers. comm., 15 January 2002). About 33% of fall chinook adults in the Snohomish system were reported to have emigrated as yearlings (Myers et al. 1998). Pre-smolt chinook rearing capacity in the floodplain is estimated to have decreased from approximately 1.2 million in the mid-19th century to 36,000 in 1998 (Haas 2001). The Snohomish River delta that encompasses the action area is especially important for the survival and recovery of the species in this system because of the extended juvenile chinook rearing strategy and the loss in quality of this habitat over time,

Total wild spawning escapement of Snohomish summer/fall stocks has ranged between 2,700 and 6,300 over the last ten years, and has exceeded the nominal escapement goal of 5,250 only twice, in 1998 and 2000 (PSIT 2001). However, because of the reduced harvest allowed, escapement has, since 1996, rebounded from the low levels observed in the early 1990s (PSIT 2001). At this time, a low escapement threshold of 2,000 natural origin, wild spawning fish has been established as a reference for harvest planning in the Snohomish River basin.

2.6 Factors Affecting Species in the Action Area

The effect of human activities on salmon habitat is one of the primary causes of the decline of salmon throughout the Pacific Northwest (Myers et al. 1998, NRC 1996). Habitat impacts identified were changes in flow regime, sedimentation, high temperatures, streambed instability, estuarine loss, loss of LWD, loss of pool habitat and blockage or passage problems associated

with dams or other structures (64 Fed. Reg. 11494; March 9, 1998). Land use activities associated with logging, road construction and urban development among others have significantly altered fish habitat quantity and quality (Myers et al. 1998). Impacts associated with these activities include alteration of streambank and channel morphology, elimination of spawning and rearing habitat, fragmentation of available habitats, removal of vegetation resulting in increased stream bank erosion, elimination of downstream spawning gravel and LWD recruitment and increased sedimentation input into spawning and rearing areas (Myers et al. 1998).

The biological requirements of the listed species are not being met under the present environmental baseline conditions in the action area. In the action area, specific indicators of habitat functional condition that will be affected by the proposed action include riparian reserves and off-channel habitat. Long-term declines in distribution and abundance of chinook may be attributed to significant historic structural and hydrologic changes, water withdrawals and impoundments, urbanization, habitat degradation, and habitat accessibility in the action area and throughout the watershed. Continuing land use development in the action area affects salmonid habitat. To improve the status of chinook, improvements in the quality and quantity of the species' habitat are needed to support migration and rearing activities.

2.7 Effects of the Proposed Action

This section of a biological opinion assesses the direct and indirect effects of the proposed action on threatened or endangered species or critical habitat, together with the effects of other interrelated or interdependent actions. Indirect effects are those that are caused later in time, but are still reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend upon the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

2.7.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated actions and interdependent actions. Future federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated as they would be the subject of future consultation under ESA section 7.

West Segment

The West Segment will be elevated above the wetland for seismic stability and to reduce wetland impacts. The COE concluded wetland impacts would be lower if the pipeline was elevated rather than buried reducing the need for between 12,500 to 20,000 additional square feet of wetland excavation from trenching (Sadler, pers. comm., 30 October 2001).

Construction and construction access in the West Segment will cause short-term and long-term effects. The long-term effects consist of shading 0.14 acres of wetland plants and removal of wetland vegetation for piling installation. Total surface biomass, after replanting, under the pipes will be about 25% of what occurs now (Everett 2001). Long-term reduced growth of conifer vegetation in the location of the pipeline will reduce input of nutrients and woody structure. Woody structure support necessary functions for chinook survival including the development of juvenile rearing areas. Furthermore, availability of food affects fish growth and development. Without properly functioning habitat to support this function the biological requirements of the species are lacking and essential behavioral patterns necessary for survival are affected.

To reduce these effects and address affected functions, Everett proposes to purchase and conserve four acres of property located along the right bank of the Snohomish River directly south of the project area. About three acres of this property are not diked and are exposed to river flooding. Three acres will be planted with about 335 trees such as native Sitka spruce or other appropriate native conifer (Sadler, pers. comm., 11 January 2002). The remaining 1 acre is located behind an existing dike and will not be replanted but will be conserved and protected indefinitely. The addition of native conifers adjacent to the Snohomish River will improve nutrient inputs and provide a source LWD to the system. Fish will benefit through potential increased food availability and woody structure that provides essential functions such as cover and habitat formation in an area currently lacking adequate woody debris and future sources of woody debris. Planting conifers will begin the process of change to PFC for the affected functions, in the action area. The Native Growth Protection Area designation will maintain the functions in perpetuity.

Short-term effects will result from use of existing temporary access roads and work pads (0.33 acres), construction and use of new access roads (0.33 acres), excavation to connect the new pipeline to existing pipeline (0.02 acres), and construction of new work pads for stockpiling soil, materials and equipment (0.61 acres) (Sadler, pers. comm. 16 November 2001). Construction of new temporary roads and excavation work necessary to connect the pipelines will destroy wetland plants and disturb underlying hydric soils. Construction of work pads will temporarily crush wetland vegetation. The extent of temporary impacts from pipeline construction will affect about 1.3 acres of wetland. After the pipeline is constructed, Everett proposes to rehabilitate 1.43 acres of disturbed wetland which includes 0.33 acres of temporary access roads recently built by WSDOT.

Everett will rehabilitate the pipeline footprint and access roads by planting 5,463 wetland shrubs and emergents throughout the disturbed areas and 12 Sitka spruce in the access and work pad areas north of the proposed off-channel habitat. About 0.2 acres of replanted wetland will be located immediately adjacent to the Snohomish River. A reduction in nutrient productivity from the wetland plantings is expected for 3-5 years prior to maturation (Everett 2001). Although trees cannot be planted in close proximity to the pipeline, plant abundance and diversity will be increased compared to the existing plant assemblage. The overall expected adverse effects are reduced, however, because of the concurrent rehabilitation proposed by Everett from the

additional three acres of degraded wetlands adjacent to the project site and the improvement in plant abundance and diversity in the project area after pipeline construction. On balance, habitat that provides essential features for fish will be improved.

To complete the pipeline project, Everett proposes to construct off-channel habitat on the Snohomish River where equipment and supplies will be delivered to the project site. The off-channel habitat will add habitat complexity to the river through the addition of LWD, emergent grasses and increased shallow water along the shoreline. This action will provide needed refuge and rearing habitat for juvenile fish and improve conditions for fish in this section of the river.

Other Actions

Disconnecting Existing Pipelines, Dechlorination and Water Discharge

Everett proposes to completely dechlorinate pipeline water before discharge to the river and slough. Everett proposes to use safe compounds for the dechlorination procedure. This proposal should avoid injury to fish gills that would otherwise result from exposure to chlorinated water and excessive turbidity (Sigler 1980, Sigler et al. 1984). Rapid discharge of a total of almost 2.6 million gallons of water could affect chinook by increasing sediment and turbidity in the river and slough. Juvenile fish could be forced to leave this location during pipeline dewatering because of disturbance from increased water flow. Rapid discharge of the water could also affect any migrating adult chinook in the area by causing them to expend more energy to move up-stream.

Hydrostatic Testing and Disinfection of Replacement Pipelines

The replacement pipelines will be hydrostatically tested and disinfected with chlorinated water before use. The water will be dechlorinated to 0.0 ppm with portable equipment prior to discharge in the project area. The area of discharge for the East Segment is within a pasture behind the dike and will infiltrate the water. The discharge area in the West Segment is outside a dike and will flow in wetland areas or infiltrate. The hydrostatic test water will be discharged and infiltrated in the easement areas of the East and West Segments and will not be directly discharging to the Snohomish River or Ebey Slough.

Water Quality Protection and Spill Prevention

The project will be constructed with procedures and measures in place to prevent erosion and sediment transport into nearby waterways and wetlands (Everett 2000). Best management practices (BMPs) to prevent erosion are listed in the BA (Everett 2000). These measures are included to avoid or minimize the potential effect on juvenile and adult chinook of sediment from earth moving and vegetation removal. Short-term negative effects from sediment may occur while reconnecting the tidal channel and possibly during dewatering of the pipeline.

Sublethal effects associated with siltation include physiological stress and reduced growth in juveniles. High concentration of suspended sediments also may delay spawning in salmonids (Spence et al. 1996) and may result in avoidance by juvenile salmonids (Bisson and Bilby 1982). Elevated turbidity levels reduce the ability of salmonids to detect prey and may cause gill damage (Sigler 1980). Moderate turbidity levels (11 to 49 NTU's) may cause juvenile steelhead and coho to leave rearing areas (Sigler et al., 1984).

To avoid or minimize possible effects of added sediment or turbidity in the Snohomish River, Everett carefully planned the timing and measures to be used when reconnecting the tidal channel. Everett will build a berm several feet wide at the top that blocks the constructed tide channel to the Snohomish River. The berm will be left in place adjacent to the Snohomish River as the tidal channel is built and planted. Silt fencing will be installed between the berm and the Snohomish River and will remain in place until the berm is removed. The berm is planned to be removed during low tides in October, and when the Snohomish River is at historic annual low flows, however, conditions at the time of construction will determine when the berm is actually removed.

Effects on chinook migrating and rearing activities will be minimized, if not avoided, by limiting construction to occur between July 1 and December 31. In addition, a Spill Prevention, Containment and Counter Measure Plan for Oil and Hazardous Substances will be developed by the contractor for the project.

2.7.2 Indirect Effects

“Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur”(50 CFR Part 402.02 (d)). Indirect effects may occur outside of the area directly affected by the action. Indirect effects may include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or they are a logical extension of the proposed action. Indirect effects related to this project are those that may affect the channel, banks and floodplain of Ebey Slough and the Snohomish River.

The location of Ebey Slough channel is confined by the dike in the vicinity of the East Segment project. Although the petroleum pipeline and State Route 2 abutments are within the proposed project area and also require protection from Ebey Slough, the presence of the buried water transmission pipelines and these other structures remove a portion of the landscape behind the dike from potential forested habitat and nutrient production. Although the existing dike could probably be set back a couple of hundred feet from its present location (Sadler, pers. comm., 12 January 2002) the actual amount of land needed to protect the pipelines from channel movement and river fed groundwater is unknown. Nevertheless, some amount of riparian habitat bordering the East Segment pipeline will be precluded from rehabilitation in the future and, as such, is an indirect effect from construction of the project.

2.7.3 Effects on Critical Habitat

The proposed water transmission pipeline replacement will affect critical habitat and the project includes measures to address these affects. The proposed construction will affect riparian vegetation through the temporal loss of recruitment opportunity in the pipeline footprint. However, LWD recruitment and riparian reserves will be increased in the future through the purchase and planting of 3 acres of river bank floodplain area adjacent to the Snohomish River. Twenty small deciduous trees will be cut during pipeline replacement and 335 conifer trees will be planted.

Off channel habitat is expected to be improved by the proposed action. In the near term, the off-channel habitat created on the Snohomish River includes LWD and emergent vegetation and will provide some immediate functional improvement in cover and food production for juvenile chinook.

Water quality in Ebey Slough and the Snohomish River will be affected by sediment and turbidity generated from the project construction. Sediment and turbidity will be increased in both the river and the slough during dewatering of the pipelines. Sediment and turbidity will increase in the Snohomish River when the tidal channel is connected to the mainstem. BMPs will be installed and increases in sediment and turbidity will be minimized and timed to avoid chinook.

The project does result in effects on elements of critical habitat (loss of recruitment potential for nutrients and LWD and short-term water quality effects). The project also includes measures such as habitat acquisition and enhancement that minimize expected effects as well as enable improvement of affected features over time. NMFS believes effects on critical habitat from the proposed project do not appreciably diminish the habitat's value for the survival and recovery of the species.

2.7.4 Cumulative Effects

Cumulative effects (50 CFR. 402.02) are defined "as those effects of future State or private activities, not involving Federal activities that are reasonably certain to occur within the action area of the Federal action subject to consultation. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation under section 7 of the ESA.

The action area includes the Snohomish River from RM 5.0 to the mouth, and all associated wetlands and sloughs downstream from the project site at State Route 2 to the Puget Sound. The action area covers approximately 28 square miles, under the assumption that the delta between Ebey Slough and the Snohomish River is all associated wetlands. A COE Section 404 permit is required for any activity that results in fill or excavation of wetlands or waters of the United States. Because the action area is primarily wetlands or waters of the United States, projects of any significance will require some fill or excavation and therefore will require federal permit review. Planning staff from local jurisdictions including City of Everett, City of Marysville,

Snohomish County, the Port of Everett (Port) and the Tulalip Tribe were contacted to identify projects that did not require federal review (Sadler, pers. comm., 9 January 2002)

Many projects were identified within the action area that required federal permits, but only one project proposed by the Port was found that did not require a federal permit. The Port is developing the former Weyerhaeuser saw mill and pulp mill site as two projects, Weyco East and Weyco West. The Weyco East project site is proposed for redevelopment as a warehouse and business park. The Port proposes to construct warehouses on old fill and therefore does not need a permit for wetland fill from the COE.

The Weyco East project is located near the mouth of the Snohomish River and is approximately 71 acres in size. At this time, permits received for the Weyco East project have been for the development of roads, utilities and stormwater controls but not for individual buildings. During the summer of 2001, the roads (including stormwater controls) and utilities were constructed. The stormwater controls were for water quality impacts and not water quantity impacts because the stormwater discharge location is tidally influenced and additional stormwater to the Snohomish River will not affect flooding (Sadler, pers. comm., 26 December 2001). Impacts to adult or juvenile chinook salmon or their critical habitat may occur from the Port project because stormwater runoff from the Port project site is not detained. However, details of the Port project are not known to NMFS at this time.

The Port is proposing Weyco West for development as a natural gas co-generation plant. This project will have COE permits required and will undergo review by NMFS in the future. This project will connect to the proposed Delta Lateral Pipeline project, presently in consultation.

2.8 Conclusion

Riparian vegetation provides numerous functions that benefit fish including shading, stabilizing streambanks, controlling sediments, contributing LWD and organic litter, and regulating the flux and composition of nutrients (FEMAT 1993). The proposed Everett Water Transmission Pipeline project will affect existing riparian wetland vegetation in the West Segment and preclude reforestation of approximately 1.4 acres of Ebey Island. About 1.87 acres of wetland will be affected in the East Segment from the project.

Everett will replant existing wetland landscape in the West Segment that is removed or destroyed by the pipeline project. Everett proposes to create a 300 foot-long tidal channel that will provide off-channel habitat for juvenile fish on the Snohomish River, an improvement over existing conditions. The action also proposes improved ecological function through Everett's purchase of an additional four acres of wetlands on Ebey Island about 100 feet from the Snohomish River that will be conserved through a Native Growth Protection Area designation. Invasive vegetation will be removed from this property and three acres of this land will be planted with conifers, shrubs and appropriate grasses that will be a potential source of woody debris and nutrients to the Snohomish River system in the future. The overall improvement of habitat in

this manner will provide the structure that supports process and functions to create essential features necessary for chinook survival and recovery.

Considering cumulative effects, the Weyco East project is the only project within the 28 square mile action area that does not require federal review. It is unlikely that increased stormwater runoff from the Weyco East project combined with positive riparian impacts and potential off-channel improvements from the proposed Everett Pipeline project will produce adverse effects to Chinook salmon or their critical habitat that rise to the level of jeopardy.

NMFS concludes that the proposed action is not likely to jeopardize the continued existence of Puget Sound chinook, nor result in the destruction or adverse modification of designated critical habitat. The determinations were based on the current status of Puget Sound chinook, the environmental baseline for the proposed action area, the effects of the proposed action on the species, the extent to which the proposed action impairs the function of essential features of critical habitat and cumulative effects.

Critical habitat will be affected but not adversely modified by construction of the proposed pipeline project from sediment production and destruction and removal of wetland vegetation. Construction of the pipeline and its maintenance will preclude part of the former forested riverine landscape from nutrient and LWD production in the future. Despite these direct and indirect impacts, NMFS believes that the proposed project, in total, will substantially improve habitat in the delta for this section of the Snohomish River and improve survival conditions for chinook populations.

2.9 Incidental Take Statement

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR. 222.102). Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7 (b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. The take statement also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.9.1 Amount or Extent of the Take

The proposed action is reasonably certain to result in take of chinook salmon. Everett's proposed water transmission pipeline replacement project is likely to generate sediment and turbidity in the Snohomish River. Adverse effects during construction and operation of the proposed project over time, could impair essential behavioral patterns including foraging, migration, and rearing. These effects have been discussed qualitatively in the preceding sections. Incidental take could occur as a result of adverse effects on chinook salmon habitat parameters (e.g. water quality, riparian reserves). These adverse effects have been reduced by BMPs and substantial riparian tree planting in the delta area.

Despite the use of the best scientific and commercial data available, NMFS cannot estimate a specific amount of incidental take of individual fish. In these instances NMFS specifies the quantity of incidental take as unquantifiable. Pathways for expected take are riparian reserves and water quality and are clarified below in the Reasonable and Prudent Measures and Terms and Conditions. The extent to which these pathways may result in effects on salmon habitat can be described qualitatively, enabling reinitiation of consultation if such effects are exceeded during the project. NMFS does not expect these effects to be measurable on the population level. The following reasonable and prudent measures reduce the level of incidental take likely to be associated with the proposed action.

2.9.2 Reasonable and Prudent Measures

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of chinook. These measures shall be integrated into the project design and construction activities and are consistent with provisions in the Hydraulic Project Approval. The COE shall ensure that Everett:

1. Reduce the effects of the proposed action on riparian reserves by minimizing impacts on wetlands.
2. Avoid or limit the adverse changes to water quality and wetland habitat in the Snohomish River, Ebey Slough and Ebey Island.
3. Monitor implementation and effectiveness of all conservation measures described in section 1.2 of this Opinion, as well as the aforementioned Reasonable and Prudent Measures and their accompanying Terms and Conditions.

2.9.3 Terms and Conditions

To comply with ESA section 7 and be exempt from the prohibitions of ESA section 9, the COE must comply with the terms and conditions that implement the Reasonable and Prudent Measures. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1, the COE will ensure that Everett will:

- a. successfully enhance the delta with trees and replace wetland plants. If at the end of the five year monitoring period, the planted areas (the project site and enhancement area) are not meeting performance criteria (Everett 2001) for vegetation growth, the monitoring and replacement regime will be continued for another five years and/or in five year increments until performance criteria are met.
 - b. Install cathodic protection on pipelines in the East Segment and monitor and maintain them to reduce the need for further wetland disturbance in the future.
2. To implement reasonable and prudent measure #2, the COE will ensure that:
 - a. Discharge water from the pipelines will be released from the blow-off vault at a velocity such that sediment is less likely to enter the Snohomish River. Everett will monitor turbidity in the Snohomish River and Ebey Slough and assure that blow-off activities do not increase turbidity more than 5 NTU's above background levels. A monitoring report shall be provided to the COE.
 - b. All water discharged to the Snohomish River and Ebey Slough is free from chlorine to the 0.0 ppm detection level. The COE shall provide a monitoring report to NMFS within one month of completion of the project.
 - c. All discharge of pipeline test water will be done in such a manner that wetland plants are not physically harmed from water moving at high velocity.
 - d. All wetland areas within the construction area shall be flagged by qualified biologists at the beginning of the project before any materials or equipment are brought on site. Sediment and erosion control plans (TESCP) and oil spill control and countermeasures plans (OSPCC) as shown on ES1-ES5 of the construction drawings and described in the BA are implemented and followed.
 - e. All soils and equipment are stockpiled or operated on temporary roads and wooden pads in areas shown on ES6-ES8 of the construction drawings. Only pipes may be stored upon wetlands before installation. No additional wetland areas shall be disturbed by construction activities.
 - f. In addition to a silt fence, an in-water curtain shall be installed before removing the berm that connects the constructed tidal channel to prevent sediment from spreading in a plume throughout the river.
 - g. Barges used for delivering supplies shall not be allowed to touch the riverbed. Care must be taken to prevent chemical spills at the barge site and through out the project area to avoid deterioration of water quality directly or indirectly.
3. To implement reasonable and prudent measure #3, the COE will ensure that:

- a. Everett will monitor appropriate conservation measures described in this Opinion including the created tidal channel, chlorine levels of discharged pipeline water and turbidity in the Snohomish River and Ebey Slough below the blow-off vaults during pipeline dewatering activities. After the project is constructed, tidal channel elevations will be monitored as described in the BA. Planted grasses, shrubs and trees shall be monitored to assure success of transplanting and growth in the project area and the Native Growth Protection Area. Photos of the planted areas shall be taken at least once per year until monitoring has determined the plants are successfully established. Results of cathodic protection shall be monitored biannually.
- b. Everett provides monitoring reports and appropriate photos to the COE for all conservation measures described in this Opinion. This will include a report for monitoring results of the project during construction and subsequent monitoring reports for cathodic protection. Everett will provide monitoring reports for cathodic protection and wetland rehabilitation and enhancement at the end of years 1, 2 and 5. Copies of these reports shall be submitted to the Habitat Conservation Division (Lacey, Washington) of NMFS within one month from the completion of construction and by April 1 for years 1, 2 and 5 following completion of the project.

2.9.4 Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

These are as follows:

1. NMFS encourages Everett to develop and build a system for dewatering the pipelines that does not require the use of rip rap rock pads on the river and slough banks for discharging water. The rip rap rock pads remain in place reducing the quality of habitat for foraging juvenile fish throughout the year.
2. NMFS encourages Everett to plan for future infrastructure protection should the East Segment dike fail in the future and not be maintained. Should funding become available, dike setback on Ebey Slough would provide the opportunity for wetland rehabilitation in the delta area and improve habitat conditions for fish.

NMFS requests notification should either of these conservation recommendations be implemented, so that additional actions minimizing or avoiding adverse effects of the project or benefitting listed species or their habitats can be recorded.

2.9.5 Reinitiation of Consultation

This concludes formal consultation on the City of Everett's Water Transmission Pipeline Replacement project outlined in the December 13, 2001 request for formal consultation. As provided in 50 CFR. §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

3.0 MAGNUSON-STEVEN'S FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2));
- NMFS must provide conservation recommendations for any Federal or State action that would adversely affect EFH (§305(b)(4)(A));
- Federal agencies must provide a detailed response in writing to NMFS within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NMFS EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*,

contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NMFS is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years)(PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas et al. (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the COE.

3.3 Proposed Actions

The proposed action and action area are detailed above in Section 1.2 of this Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of 17 species of groundfish, 4 species of coastal pelagic, and 3 species of Pacific salmon (Table 1).

Table 1. Species of fishes with designated EFH in the estuarine composite of Puget Sound.

Groundfish Species	Sablefish <i>Anoplopoma fimbria</i>	Coastal Pelagic Species
Spiny Dogfish <i>Squalus acanthias</i>	Bocaccio <i>S. paucispinis</i>	anchovy <i>Engraulis mordax</i>
California Skate <i>R. inornata</i>	Brown Rockfish <i>S. auriculatus</i>	Pacific sardine <i>Sardinops sagax</i>
Ratfish <i>Hydrolagus coliei</i>	Copper Rockfish <i>S. caurinus</i>	Pacific mackerel <i>Scomber japonicus</i>
Lingcod <i>Ophiodon elongatus</i>	Quillback Rockfish <i>S. maliger</i>	Market squid <i>Loligo opalescens</i>
Cabezon <i>Scorpaenichthys marmoratus</i>	English Sole <i>Parophrys vetulus</i>	Pacific Salmon Species
Kelp Greenling <i>Hexagrammos decagrammus</i>	Pacific Sanddab <i>Citharichthys sordidus</i>	Chinook salmon <i>Oncorhynchus tshawytscha</i>
Pacific Cod <i>Gadus macrocephalus</i>	Rex Sole <i>Glyptocephalus zachirus</i>	Coho salmon <i>O. kisutch</i>
Pacific Whiting (Hake) <i>Merluccius productus</i>	Starry Flounder <i>Platichthys stellatus</i>	Puget Sound pink salmon <i>O. gorbuscha</i>

3.4 Effects of Proposed Action

As described in detail in Section 2.6 of the Opinion, the proposed action may result in short- and long-term adverse effects to a variety of habitat parameters. These adverse effects are:

1. Increased sediment and turbidity from dewatering pipelines, from re-connection of the created tidal channel, and from the construction staging areas to the Snohomish River. Increased sediment and turbidity diminish water quality in the action area.
2. Reduced productivity of wetlands in the delta area from plants that are removed or partially destroyed because of construction activity. Reduced productivity affects nutrient cycles in the estuarine environment necessary for sustaining food chains that support marine fish and invertebrates.
3. Decreased quality and quantity of riparian reserves for production of woody debris to the aquatic system. Some landscape area is foreclosed from future production of woody debris that provides habitat forming features necessary for salmonid survival and recovery.
4. The use of rip rap rock pads on the river and slough banks at the discharge points constitute a continuing degradation of EFH.

3.5 Conclusion

NMFS concludes that the proposed action would adversely affect the EFH for **the groundfish, coastal pelagic, and Pacific salmon species listed in Table 1.**

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NMFS is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NMFS understands that the conservation measures described in the Biological Assessment will be implemented by the COE, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the most of the Terms and Conditions outlined in Section 2.8.3 and the ESA Conservation Recommendations in Section 2.8.4 are generally applicable to designated EFH for the species in Table 1, and address these adverse effects. Consequently, NMFS recommends that ESA Conservation Recommendation 1 and all of the Terms and Conditions, except for 2b and 2g, be adopted as EFH conservation measures.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NMFS' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920(k)).

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